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10/562,417	06/05/2006	Fabien Lanteires	LAV05006	5451
29980	7590	12/07/2007	EXAMINER	
NICOLAS E. SECKEL			CHANG, CHING	
Patent Attorney				
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WASHINGTON, DC 20036			PAPER NUMBER	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/562,417

Applicant(s)

LANTEIRES, FABIEN

Examiner

Ching Chang

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12/23/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 12/23/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

This Office Action is in response to the Preliminary Amendment filed on 12/23/2005.

#### ***Oath/Declaration***

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the citizenship of each inventor properly. The citizenship of the inventor in this application should be -- France --, instead of " French " therein.

#### ***Claim Objections***

2. Claims 1-20 are objected to because of the following informalities:
- " Method " in line 1 of claim 1 should be -- A method --.
  - " Method " in line 1 of claims 2-10, and 13-20 should be -- The method --.
  - " Internal -combustion engine " in line 1 of claim 11 should be -- An internal combustion engine --.
  - " Motor " in line 1 of claim 12 should be -- A motor --.

Appropriate corrections are required.

#### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. ***Claims 1-2, 4, 6, 9-12, 14, 16, and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as being obvious over Onoda et al. (US Patent 4,185,599).***

Onoda discloses a method for controlling the operation of a cylinder (3) of an internal-combustion engine, the cylinder being provided with a combustion chamber (11) which can be opened or closed at the intake and opened or closed at the exhaust, and at least one fuel injector, in which method (See Col. 2, line 66 through Col. 5, line 52), during the same operating cycle of the cylinder, the following phases are carried out: an opening phase at the exhaust between an exhaust opening time and an exhaust closing time; a first opening phase at the intake between a first intake opening time after the exhaust opening time and a first intake closing time; a second opening phase at the intake between a second intake opening time and a second intake closing time; a fuel injection phase between an injection start time and an injection end time; and a combustion phase for the air/fuel mixture contained in the chamber, wherein the exhaust closing time is between the first intake opening time and the second intake

opening time; wherein the phases are carried out during each operating cycle of the cylinder; an internal-combustion engine having at least one cylinder which is provided with a combustion chamber which can be opened or closed at the intake and opened or closed at the exhaust, and at least one fuel injector, wherein the cylinder operates in accordance with a method according to claim 1; a motor vehicle comprising an internal-combustion engine according to claim 11; wherein the second intake opening time precedes the first intake closing time; wherein the injection start time precedes the first intake closing time; wherein the amplitude of the opening at the intake is adjusted so that the amplitude of the opening during the first opening phase at the intake is different from the amplitude of the opening during the second opening phase at the intake; wherein the phases are carried out during each operating cycle of the cylinder.

6. ***Claims 1-3, 5, 9-13, 15, and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as being obvious over Sickler (US Patent 4,572,114).***

Sickler discloses a method for controlling the operation of a cylinder (3) of an internal-combustion engine, the cylinder being provided with a combustion chamber (11) which can be opened or closed at the intake and opened or closed at the exhaust, and at least one fuel injector, in which method (See Col. 2, line 66 through Col. 5, line 52), during the same operating cycle of the cylinder, the following phases are carried out: an opening phase at the exhaust between an exhaust opening time and an exhaust closing time; a first opening phase at the intake between a first intake opening time after the exhaust opening time and a first intake closing time; a second opening phase at the

intake between a second intake opening time and a second intake closing time; a fuel injection phase between an injection start time and an injection end time; and a combustion phase for the air/fuel mixture contained in the chamber, wherein the exhaust closing time is between the first intake opening time and the second intake opening time; wherein the phases are carried out during each operating cycle of the cylinder; an internal-combustion engine having at least one cylinder which is provided with a combustion chamber which can be opened or closed at the intake and opened or closed at the exhaust, and at least one fuel injector, wherein the cylinder operates in accordance with a method according to claim 1; a motor vehicle comprising an internal-combustion engine according to claim 11; wherein the first intake closing time precedes the second intake opening time; wherein the first intake closing time precedes the injection start time; wherein the amplitude of the opening at the intake is adjusted so that the amplitude of the opening during the first opening phase at the intake is different from the amplitude of the opening during the second opening phase at the intake; wherein the phases are carried out during each operating cycle of the cylinder.

**7. Claims 1-3, 5, 9-13, 15, and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as being obvious over Fujii et al. (US Patent 5,183,011).**

Fujii discloses a method for controlling the operation of a cylinder of an internal-combustion engine, the cylinder being provided with a combustion chamber (See Fig. 1) which can be opened or closed at the intake and opened or closed at the exhaust, and at least one fuel injector, in which method (See Fig. 2), during the same operating cycle

of the cylinder, the following phases are carried out: an opening phase at the exhaust between an exhaust opening time and an exhaust closing time; a first opening phase at the intake between a first intake opening time after the exhaust opening time and a first intake closing time; a second opening phase at the intake between a second intake opening time and a second intake closing time; a fuel injection phase between an injection start time and an injection end time; and a combustion phase for the air/fuel mixture contained in the chamber, wherein the exhaust closing time is between the first intake opening time and the second intake opening time; wherein the phases are carried out during each operating cycle of the cylinder; an internal-combustion engine having at least one cylinder which is provided with a combustion chamber which can be opened or closed at the intake and opened or closed at the exhaust, and at least one fuel injector, wherein the cylinder operates in accordance with a method according to claim 1; a motor vehicle comprising an internal-combustion engine according to claim 11; wherein the first intake closing time precedes the second intake opening time; wherein the first intake closing time precedes the injection start time; wherein the amplitude of the opening at the intake is adjusted so that the amplitude of the opening during the first opening phase at the intake is different from the amplitude of the opening during the second opening phase at the intake; wherein the phases are carried out during each operating cycle of the cylinder.

8. ***Claims 7-8, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Onoda, Sickler, and Fujii (as applied to claims 1-2 above) in view of Urushihara et al. (US Patent 6,386,177).***

Each one of Onoda, Sickler, and Fujii discloses the invention, however, fails to disclose the injection start time being between the first intake opening time and the exhaust closing time.

The patent to Urushihara on the other hand, teaches that it is conventional in the engine art, to utilize a fuel injection starting time between an intake opening time and an exhaust closing time (See Fig. 5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the fuel injection start timing between the intake opening time and the exhaust closing time as taught by Urushihara in the either one of the Onoda, Sickler, and Fujii method, since the use thereof would provide a better fuel economy control method on the engine.

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ching Chang whose telephone number is (571)272-4857. The examiner can normally be reached on M-Th, 7:00 AM -5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571)272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.